

IN THE CLAIMS:

The following listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Previously Presented) A power delivery management system, the system comprising:

- a plurality of digital power management devices, wherein each of the plurality of power management devices comprises a plurality of functions, wherein each of the plurality of digital power management devices is operable to provide power to one or more point of load devices; and

- a control and communication bus, wherein each one of the plurality of digital power management devices is coupled to the control and communication bus;

- wherein each respective digital power management device of the plurality of digital power management devices includes a controller operable to control the functions of the respective digital power management device;

- wherein the plurality of digital power management devices are operable to communicate with each other over the control and communication bus to receive information from each other to coordinate their functions;

- wherein in receiving information from each other to coordinate their functions:

- each of the plurality of digital power management devices is configured to receive information transmitted onto the bus by other digital power management devices of the plurality of digital power management devices; and

- each of the plurality of power management devices is configured to perform one or more of its functions based on the information transmitted onto the bus by the other digital power management devices.

2. (Previously Presented) The system of claim 1,

- wherein at least one of the plurality of digital power management devices is also operable to coordinate and/or control the functions of one or more other ones of the plurality of digital power management devices.

3. (Previously Presented) The system of claim 2,

wherein the other ones of the plurality of digital power management devices are operable to provide status information over the control and communication bus to the at least one of the plurality of digital power management devices.

4. (Original) The system of claim 1,

wherein the plurality of functions comprise one or more power delivery functions;
wherein each respective one of the plurality of digital power management devices includes a controller operable to control the one or more power delivery functions of the respective digital power management device.

5. (Original) The system of claim 1,

wherein at least a subset of the plurality of digital power management devices each comprise the same functions.

6. (Original) The system of claim 1, wherein one or more of the plurality of digital power management devices comprises a voltage converter unit.

7. (Original) The system of claim 6, wherein the voltage converter unit comprises a DC (direct current) to DC voltage converter.

8. (Original) The system of claim 1, wherein the control and communication bus is a digital bus.

9. (Original) The system of claim 8, wherein the control and communication bus comprises at least one of:

error detection capability; and

a training sequence to allow quick clock recovery.

10. (Original) The system of claim 8, wherein the control and communication bus is configured to allow bus transitions to be used to perform clock synchronization between devices coupled to the control and communication bus.

11. (Original) The system of claim 8, wherein the control and communication bus comprises one or more digital communication paths, wherein each one of the one or more digital communication paths comprises one or more dedicated signals.

12. (Original) The system of claim 11, wherein the one or more digital communication paths are operable to be modulated onto an input supply voltage that provides voltage to the system.

13. (Original) The system of claim 1, wherein each individual one of the plurality of digital power management devices is operable to be programmed and/or configured across the control and communication bus.

14. (Original) The system of claim 1, wherein two or more of the plurality of digital power management devices are operable to be grouped together in a current sharing configuration.

15. (Original) The system of claim 14, wherein the two or more of the plurality of digital power management devices grouped in the current sharing configuration are operable to automatically reconfigure themselves in response to a failure of one or more of the two or more of the plurality of digital power management devices grouped in the current sharing configuration.

16. (Original) The system of claim 14, wherein one of the two or more of the plurality of digital power management devices grouped in the current sharing configuration is operable to be automatically identified as a master device for the current sharing configuration.

17. (Original) The system of claim 16, wherein the master device is operable to automatically reconfigure the current sharing configuration in response to a failure of one or more of the two or more of the plurality of digital power management devices grouped in the current sharing configuration.

18. (Original) The system of claim 16, wherein in support of the current-sharing configuration the master device is operable to automatically transmit one or more of:

- a respective measured load current;
- a respective measured load voltage; and
- respective measured status data.

19. (Original) The system of claim 16, wherein in support of the current-sharing configuration the master device is operable to limit and/or control one or more of:

- output load current;
- output load voltage; and
- output load temperature.

20. (Original) The system of claim 1, wherein each one of the plurality of digital power management devices is operable to provide feedback data to all other ones of the plurality of digital power management devices.

21. (Original) The system of claim 20, wherein the feedback data comprises real-time data.

22. (Original) The system of claim 1, wherein the functions of the plurality of digital power management devices comprise at least one of:

- supply sequencing;
- phase offset adjustment;
- current sharing;
- voltage programming and voltage tracking; and
- ramp rate control.

23. (Original) The system of claim 22, wherein each one of the plurality of digital power management devices is operable to automatically transmit a respective measured or target voltage value on the control and communication bus to support the voltage tracking.

24. (Original) The system of claim 22, wherein each one of the plurality of digital power management devices is operable to automatically transmit one or more respective output voltage values on the control and communication bus to support the voltage tracking.

25. (Original) The system of claim 1, wherein the functional features of the plurality of digital power management devices include margining.

26. (Original) The system of claim 1, wherein the functional features of the plurality of digital power management devices include voltage supply sequencing.

27. (Original) The system of claim 1 further comprising at least one master control device coupled to the control and communication bus, wherein the at least one master control device is operable to centrally control the plurality of digital power management devices to implement advanced features.

28. (Original) The system of claim 27, wherein the advanced features comprise reconfiguring and/or reprogramming one or more of the plurality of digital power management devices.

29. (Original) The system of claim 27, wherein the advanced features comprise one or more of:

- fault prediction;
- air-flow control; and
- advanced voltage supply sequencing.

30. (Original) The system of claim 1, wherein each one of the plurality of digital power management devices is operable to automatically self-test.

31. (Original) The system of claim 1, wherein each one of the plurality of digital power management devices is operable to auto-calibrate.

32. (Original) The system of claim 1,
wherein the power delivery management system is comprised on a printed circuit board;
wherein each of the plurality of digital power management devices is distributed on the printed circuit board.

33. (Original) The system of claim 1,
wherein each of the plurality of digital power management devices comprises an integrated circuit.

34. (Original) The system of claim 1, wherein the control and communication bus is a serial bus.

35. (Previously Presented) The system of claim 27,
wherein the master control device is operable to control the plurality of digital power management devices through communicating with the plurality of digital power management devices over the control and communication bus.

36. (Previously Presented) The system of claim 35, wherein the control and communication bus is a serial digital control and communication bus.

37. (Previously Presented) The system of claim 35, wherein said communicating with the plurality of digital power management devices comprises each one of the plurality of digital power management devices providing feedback data to the master control device.

38. (Previously Presented) The system of claim 35, wherein the master control device comprises a controller operable to execute functions corresponding to each of the plurality of digital power management devices to control the plurality of digital power management devices.

39. (Previously Presented) The system of claim 35, wherein the plurality of digital power management devices provide status information over the control and communication bus to the master control device.

40. (Previously Presented) The power delivery management system of claim 1, wherein the information transmitted onto the bus by the other digital power management devices comprises status information of respective one or more functions of the other digital power management devices.

41. (Previously Presented) A power delivery management system, the system comprising:

a plurality of digital power management devices, wherein each of the plurality of power management devices comprises a plurality of functions, wherein each of the plurality of digital power management devices is operable to provide power to one or more point of load devices, wherein each of the plurality of digital power management devices comprises an interface configured to couple to a control and communication bus; and

wherein each respective digital power management device of the plurality of digital power management devices includes a controller operable to control the functions of the respective digital power management device;

wherein the plurality of digital power management devices are configured to communicate with each other over the control and communication bus to receive information from each other to coordinate their functions;

wherein in receiving information from each other to coordinate their functions:

the plurality of digital power management devices are configured to receive information transmitted onto the bus by any of the plurality of digital power management devices; and

each of the plurality of power management devices is configured to perform one or more of its functions based on information received from any of the plurality of power management devices.

42. (Previously Presented) A power delivery management system, the system comprising:

a plurality of digital power management devices, wherein each of the plurality of power management devices comprises a plurality of functions, wherein each of the plurality of digital power management devices is operable to provide power to one or more point of load devices; and

a control and communication bus, wherein each one of the plurality of digital power management devices is coupled to the control and communication bus;

wherein each respective digital power management device of the plurality of digital power management devices includes a controller operable to control the functions of the respective digital power management device;

wherein the plurality of digital power management devices are operable to communicate with each other over the control and communication bus to receive information from each other;

wherein in receiving information from each other:

the plurality of digital power management devices are configured to receive status information transmitted onto the bus by other digital power management devices of the plurality of digital power management devices;

each of the plurality of power management devices is configured to perform one or more of its functions based on the status information received from the other digital power management devices; and

wherein the status information comprises status of respective functions of the other digital power management devices.